**Stat and Data Analysis: CW 3.1 A Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

1. Students taking an intro stats class reported the number of credit hours that they were taking that quarter. Summary statistics are shown in the table.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **mean** | **s** | **min** | **Q1** | **Median** | **Q3** | **Max** | **IQR** | **Range** |
| 16.65 | 2.96 | 5 | 15 | 16 | 19 | 28 |  |  |

Suppose that the college charges $73 per credit hour plus a flat student fee of $35 per quarter. In other words: FEE = $35 + $73(CREDITS) What are the new summary statistics?

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **mean** | **s** | **min** | **Q1** | **Median** | **Q3** | **Max** | **IQR** | **Range** |
|  |  |  |  |  |  |  |  |  |

1. Given the following set of test scores from a class of students:

{42, 55, 58, 62, 66, 66, 67, 69, 70, 71, 71, 71, 73, 75, 78, 78, 79, 83, 83, 84, 85, 87, 88, 90, 92, 95}

1. Find the percentile for the person who scored a 79% on the test.
2. Interpret what this percentile means (in context).
3. In her school, Megan is in the 92nd percentile for girls heights. However, compared to other girls her age in the nation, she is only in the 48th percentile! How can this be true? Explain briefly. Be complete in your answer.
4. Jack and Jill both ran a marathon and clocked in at the same time of 3 hours and 45 minutes. Jill was excited to learn that she had a time that was in the 75th percentile for women her age. Jack was saddened to hear that his time was only in the 45th percentiles for men his age.
5. Explain what the 75th percentile means for Jill’s run time.
6. How can they have the same time yet have such different percentiles?
7. What does this tell us about the mean times for men and women?
8. Suppose the average (mean) price of gas in a large city is $3.53 per gallon with a standard deviation of $0.05.
9. Convert $3.45 to a z-score and interpret
10. Convert $3.67 to a *z*-score and interpret
11. Convert the *z*-score 1.8 back into a value d) Convert z-score –1.60 back into a value
12. Tim and Larry both took standardized tests to get into college. Tim took the ACT and Larry took the SAT. Tim scored a 26 on the ACT and Larry scored an 1800 on the SAT. The year they took the test, the SAT mean = 1500 and s = 250, and the ACT mean = 20.8 and s = 4.8. Who scored higher (relatively)? Explain briefly.
13. Suppose there are 2 movie theaters, one much larger than the other. Theater A’ attendance averages 780 people with a standard deviation of 40 people. Theater B averages 200 people with a standard deviation of 30 people. What would be a more unusual attendance: 700 people at Theater A or 250 people in Theater B? Briefly explain why.
14. Draw a density curve that has a width of 4 and is uniform
15. What is the mean? The median?
16. What % of data is below 2.5?
17. What percent of data is above 0.7?
18. What percent of data is between 1.5 and 2.7?